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Using the same figure and notation, we can derive in a similar way the relation,

$$(m + n) \cot \theta = n \cot A - m \cot B.$$

These trigonometric relations facilitate the solution of some problems in physics.

For example, having given the direction and velocity of projection, let it be required to find the velocity with which a projectile would strike an oblique plane.

If we denote by i the inclination of the plane to the horizon (Fig. 2), and apply the second relation above derived, noting that tangents at two points A and B of a parabola meet on the diameter bisecting AB , we get

$$\cot A - \cot B = 2 \tan i.$$

Hence, we determine the angle B , since the angles A and i are known. But, if AC and BC are tangents at two points A and B on a parabolic trajectory, and V_1 and V_2 the corresponding velocities, then

$$\frac{V_1}{V_2} = \frac{\sin B}{\sin A} \quad \text{and} \quad V_2 = \frac{V_1 \sin A}{\sin B},$$

and the required velocity is determined.

THE CHARTER MEMBERSHIP OF THE ASSOCIATION.

The By-Laws of the Association provided that those who should be elected to membership before April 1, 1916, should constitute the list of Charter Members. Owing to circumstances beyond our control the issue of the Monthly containing the report of the Columbus meeting and the announcement of the conditions of membership could not be distributed to the public till well into February. Similar delays of subsequent issues likewise prevented the prompt distribution of other information, so that the great flood of applications came late in March, thus making it impossible to complete the report until the present time.

The following is a preliminary report of the charter membership giving only the name of each member and the institution represented. As soon as possible there will be published a complete directory, giving the official position and mailing address of each member. Meanwhile, we invite careful scrutiny of the present list in order to detect any omissions or errors which may have escaped the attention of the secretary in the arduous task of checking up the returns.

It was assumed that all who joined in the call for the Columbus meeting, or took part in that meeting, would consider themselves eligible to charter membership, and the executive committee of the Council so ruled. From eighteen of these five hundred persons we had not, on going to press, received any expression of their intention, but we are provisionally including their names in the list below, pending the receipt of such information.

ALABAMA.

F. L. Carmichael, University of Alabama.
 F. E. Chapman, Southern University.
 B. H. Crenshaw, Alabama Polytechnic Institute.
 T. R. Eagles, Howard College.
 W. V. Luckie, Sulligent Public School.
 J. F. Messick, Alabama Polytechnic Institute.
 H. A. Sayre, University of Alabama.
 B. L. Shi, Alabama Polytechnic Institute.

ARIZONA.

G. M. Butler, University of Arizona.
 G. H. Cresse, University of Arizona.
 C. O. Lampland, Lowell Observatory.
 H. B. Leonard, University of Arizona.

ARKANSAS.

Flora Armitage, Little Rock High School.
 J. A. Bigbee, Little Rock High School.
 P. N. Bragg, Helena High School.
 G. W. Droke, University of Arkansas.
 A. M. Harding, University of Arkansas.
 H. L. McAlister, Ouachita College.
 W. L. Miser, University of Arkansas.
 W. M. Stearnagle, Manilla.

CALIFORNIA.

Gertrude E. Allen, San Diego Junior College.
 Paul Arnold, University of Southern California.
 F. A. Ballaseyus, Stockton High School.
 B. A. Bernstein, University of California.
 H. F. Blichfeldt, Stanford University.
 F. P. Brackett, Pomona College.
 Myrtle Collier, Los Angeles Normal School.
 S. R. Cook, College of the Pacific.
 F. E. Crofts, Lowell High School, San Francisco.
 F. J. Dick, Raja Yoga College.
 H. O. Eggen, Santa Ana Junior College.
 Sadie L. Gilmore, Antioch High School.
 R. L. Green, Stanford University.
 M. W. Haskell, University of California.
 J. E. Higdon, Life Insurance, Los Angeles.
 L. M. Hoskins, Stanford University.
 Frank Irwin, University of California.
 D. N. Lehmer, University of California.
 C. T. Levy, University of California.
 R. M. Mathews, Polytechnic High School, Riverside.
 A. L. McCarty, Lowell High School, San Francisco.
 G. F. McEwen, Scripps Biological Institution.
 H. C. Moreno, Stanford University.
 F. R. Morris, Glendale Union High School.
 C. A. Noble, University of California.
 E. W. Ponzer, Stanford University.
 F. D. Posey, Pipe Line Company, Lebec.
 T. M. Putnam, University of California.
 W. P. Russell, Pomona College.
 T. J. J. See, U. S. Naval Observatory.
 H. W. Stager, Fresno Junior College.
 C. M. Titus, University Farm School.
 Jean Tuttle, Watsonville High School.
 H. C. Van Buskirk, Throop College of Technology.
 H. van Huystee, Berkeley.

A. R. Wapple, Berkeley.

H. C. Willett, University of Southern California.
 A. R. Williams, University of California.
 Clyde Wolfe, Occidental College.
 B. M. Woods, University of California.
 H. N. Wright, University of California.

CANADA.

N. H. Anning, Rosedale Public School.
 Alfred Baker, University of Toronto.
 Daniel Buchanan, Queen's University.
 J. E. Campbell, Collegiate Institute, Regina.
 N. A. Draxten, Langenburg, Sask.
 William Findlay, McMaster University.
 C. F. Gummer, Queen's University.
 H. R. Kingston, University of Manitoba.
 G. H. Ling, University of Saskatchewan.
 J. Matheson, Queen's University.
 D. A. Murray, McGill University.
 I. R. Pounder, University of Toronto.
 T. R. Rosebrugh, Toronto.
 E. W. Sheldon, University of Alberta.
 L. A. H. Warren, University of Manitoba.

COLORADO.

Nathan Altshiller, University of Colorado.
 Mabel S. Bateman, Colorado Springs High School.
 B. J. Brown, Victor High School.
 E. L. Brown, North Side High School, Denver.
 C. R. Burger, Colorado School of Mines.
 Florian Cajori, Colorado College.
 I. M. DeLong, University of Colorado.
 Adelaide Denis, Colorado Springs High School.
 G. W. Finley, Colorado State Teachers College.
 W. H. Hill, Greeley High School.
 C. E. Horne, Westminster College.
 H. A. Howe, University of Denver.
 Claribel Kendall, University of Colorado.
 O. C. Lester, University of Colorado.
 F. H. Loud, Colorado College.
 S. A. Macdonald, Colorado Agricultural College.
 Mrs. H. F. Morgan, Arriola.
 Letitia R. Odell, North Side High School, Denver.
 H. M. Showman, Colorado School of Mines.
 C. S. Sperry, University of Colorado.
 Emma K. Whiton, High School, Pueblo.

CONNECTICUT.

E. W. Brown, Yale University.
 C. E. Dimick, U. S. Coast Guard Academy.
 J. D. Flynn, Trinity College.
 D. D. Leib, Yale University.
 G. H. Light, New Haven.
 W. R. Longley, Yale University.
 H. F. MacNeish, Yale University.
 E. J. Miles, Yale University.
 P. R. Rider, Yale University.
 R. B. Robbins, Yale University.
 Joseph Rosenbaum, Rosenbaum School.
 P. F. Smith, Yale University.
 J. I. Tracey, Yale University.
 H. S. Uhler, Yale University.
 C. A. Wheeler, Agricultural College.
 W. A. Wilson, Yale University.

DELAWARE.

G. A. Harter, Delaware College.
 Elizabeth P. Hebb, The Misses Hebb's School.
 C. A. Short, Delaware College.

DISTRICT OF COLUMBIA.

O. S. Adams, U. S. Coast and Geodetic Survey.
 W. H. Bixby, U. S. Army.
 J. W. Cromwell, Jr., M Street High School.
 Elizabeth B. Davis, U. S. Naval Observatory.
 Director, Department of Terrestrial Magnetism,
 Washington.
 Harry English, Washington High Schools.
 W. M. Hamilton, U. S. Naval Observatory.
 R. A. Harris, U. S. Coast and Geodetic Survey.
 H. L. Hodgkins, George Washington University.
 W. D. Lambert, U. S. Coast and Geodetic Survey.
 A. E. Landry, Catholic University of America.
 M. Cecilia Mangold, Trinity College.
 Artemas Martin, U. S. Coast and Geodetic
 Survey.
 C. E. Van Orstrand, U. S. Geological Survey
 R. S. Woodward, Carnegie Institution.

FLORIDA.

Berd R. Allen, Southern College.
 H. G. Keppel, University of Florida.
 E. S. Palmer, Rollins College.
 J. E. Sanders, Jacksonville.

GEORGIA.

G. W. Brindle, Baxley High School.
 W. W. Burton, Mercer University.
 R. W. Edenfield, Mercer University.
 Floyd Field, Georgia School of Technology.
 P. E. Hemke, Georgia School of Technology.
 Ruby Hightower, Cox College.
 A. B. Morton, Georgia School of Technology.
 M. T. Peed, Emory College.
 R. S. Pond, University of Georgia.
 Amy F. Preston, Agnes Scott College.
 Douglas Rumble, Emory College.
 W. V. Skiles, Georgia School of Technology.
 D. M. Smith, Georgia School of Technology.
 D. L. Stamy, Georgia School of Technology.
 R. P. Stephens, University of Georgia.
 Anna I. Young, Agnes Scott College.

IDAHO.

H. H. Conwell, University of Idaho.
 Chester Snow, University of Idaho.

ILLINOIS.

D. A. Abrams, Lewis Institute.
 Mary Anderson, Illinois Woman's College.
 C. M. Austin, Oak Park High School.
 I. A. Barnett, Chicago.
 C. A. Barnhart, Carthage College.
 R. M. Barton, Lombard College.
 M. C. Baudin, Chicago.
 G. A. Bliss, University of Chicago.
 R. L. Borger, University of Illinois.
 Wm. H. Cahill, Loyola University.

D. F. Campbell, Armour Institute of Technology.
 H. S. Card, Lombard College.
 R. D. Carmichael, University of Illinois.
 E. H. Carus, La Salle.
 W. E. Cederberg, Augustana College.
 W. A. Challacombe, Blackburn College.
 E. W. Chittenden, University of Illinois.
 C. H. Clevenger, Urbana.
 H. E. Cobb, Lewis Institute.
 C. E. Comstock, Bradley Polytechnic Institute.
 M. W. Coultrap, North-Western College.
 A. R. Crathorne, University of Illinois.
 D. R. Curtiss, Northwestern University.
 J. W. Dappert, Taylorville.
 W. W. Denton, University of Illinois.
 L. E. Dickson, University of Chicago.
 Arnold Emch, University of Illinois.
 J. A. Foberg, Crane Junior College, Chicago.
 R. M. Ginnings, Western Illinois State Normal
 School.
 C. F. Green, University of Illinois.
 J. O. Hassler, Englewood High School, Chicago.
 F. P. Hebblethwaite, Northwestern University.
 G. W. Hess, Shurtleff College.
 H. H. Hilton, Ginn and Company, Chicago.
 T. F. Holgate, Northwestern University.
 J. T. Holmes, Orleans.
 Nelle L. Ingels, Greenville College.
 Ethel L. Jarrett, Chicago Latin School for Girls.
 J. H. Jones, Allyn and Bacon, Chicago.
 A. J. Kempner, University of Illinois.
 F. L. Kerr, New Trier Township High School,
 Evanston.
 J. M. Kinney, Hyde Park High School, Chicago.
 W. C. Krathwohl, Armour Institute of Technology.
 K. W. Lamson, Chicago.
 Kurt Laves, University of Chicago.
 Flora E. LeStourgeon, Chicago.
 A. C. Lunn, University of Chicago.
 E. B. Lytle, University of Illinois.
 Martha Macdonald, Pullman Free School of
 Manual Training, Chicago.
 W. D. MacMillan, University of Chicago.
 Malcolm McNeill, Lake Forest College.
 Bessie I. Miller, Rockford College.
 G. A. Miller, University of Illinois.
 E. H. Moore, University of Chicago.
 Elsie Morrison, Frances Shimer School, Mount
 Carroll.
 E. J. Moulton, Northwestern University.
 F. R. Moulton, University of Chicago.
 G. W. Myers, University of Chicago.
 H. S. Myers, Chicago.
 H. L. Olson, Chicago.
 W. P. Ott, Chicago.
 C. I. Palmer, Armour Institute of Technology.
 Alexander Pell, Northwestern University.
 C. A. Pettersen, Schurz High School, Chicago.
 H. L. Rietz, University of Illinois.
 W. J. Risley, James Millikin University.
 Irwin Roman, Chicago.
 Ida M. Schottenfels, Chicago.
 A. R. Schweitzer, Chicago.
 G. T. Sellew, Knox College.

J. B. Shaw, University of Illinois.
 L. S. Shively, Mount Morris College.
 T. McN. Simpson, Jr., Chicago.
 C. H. Sisam, University of Illinois.
 Marcus Skarstedt, Augustana College.
 H. E. Slaught, University of Chicago.
 G. W. Smith, University of Illinois.
 H. L. Smith, Northwestern University.
 Elizabeth Soderholm, Northwestern University.
 V. M. Spunar, Civil Engineer, Chicago.
 Sarah S. Stahl, Wendell Phillips High School, Chicago.
 Mary C. Suffa, Chicago.
 E. H. Taylor, Eastern Illinois State Normal School.
 W. H. Taylor, Southern Illinois State Normal University.
 Clara Thielbar, Carthage College.
 E. J. Townsend, University of Illinois.
 G. E. Wahlin, University of Illinois.
 T. O. Walton, William and Vashti College.
 F. M. Weida, St. Alban's School, Knoxville.
 L. G. Weld, Pullman Free School of Manual Training, Chicago.
 J. A. Whitted, Hedding College.
 E. J. Wilczynski, University of Chicago.
 R. E. Wilson, Northwestern University.
 Alice Winbigler, Monmouth College.
 Olice Winter, Harrison Technical High School, Chicago.
 C. H. Yeaton, Northwestern University.
 J. W. A. Young, University of Chicago.

INDIANA.

O. W. Albert, Purdue University.
 W. H. Bates, Purdue University.
 C. H. Beckett, State Life Insurance Company, Indianapolis.
 J. A. Caparo, Notre Dame University.
 E. H. Clarke, Purdue University.
 L. C. Cox, Purdue University.
 J. A. Cragwall, Wabash College.
 S. C. Davisson, Indiana University.
 G. H. Graves, Purdue University.
 Lawrence Hadley, Earlham College.
 U. S. Hanna, Indiana University.
 C. T. Hazard, Purdue University.
 Cora B. Hennel, Indiana University.
 F. H. Hodge, Franklin College.
 E. N. Johnson, Butler College.
 A. M. Kenyon, Purdue University.
 Alexander Knisely, Columbia City.
 R. S. Lawrence, Hanover College.
 Charles Leckrone, Manchester College.
 D. A. Lehman, Goshen College.
 W. V. Lovitt, Purdue University.
 W. O. Mendenhall, Earlham College.
 E. T. Motts, South Bend.
 C. K. Robbins, Purdue University.
 D. A. Rothrock, Indiana University.
 George Spitzer, Purdue University.
 O. D. Tyner, High School, Ft. Wayne.
 K. P. Williams, Indiana University.
 W. A. Zehring, Purdue University.

IOWA.

Edna Allen, Iowa State Teachers College.
 R. P. Baker, State University of Iowa.
 W. E. Beck, State University of Iowa.
 G. A. Chaney, State College of Agriculture.
 Julia T. Colpitts, State College of Agriculture.
 I. S. Condit, Iowa State Teachers College.
 S. A. Corey, Wapello Coal Company, Albia.
 Marian E. Daniells, State College of Agriculture.
 C. W. Emmons, Simpson College.
 Fay Farnum, State College of Agriculture.
 Cornelius Gouwens, State University of Iowa.
 S. M. Hadley, Penn College.
 Gertrude A. Herr, State College of Agriculture.
 Daniel Kreth, Wellman.
 R. B. McClenon, Grinnell College.
 F. M. McGaw, Cornell College.
 Nina Madison, State College of Agriculture.
 I. F. Neff, Drake University.
 Mrs. Mary B. Norton, Cornell College.
 E. A. Pattengill, State College of Agriculture.
 J. F. Reilly, State University of Iowa.
 Maria M. Roberts, State College of Agriculture.
 J. E. Robertson, Highland Park College.
 W. J. Rusk, Grinnell College.
 B. F. Simonson, Upper Iowa University.
 A. G. Smith, State University of Iowa.
 S. G. Stein, Muscatine.
 E. H. Thomas, Tabor College.
 E. L. Thompson, Burlington High School.
 R. N. Van Horne, Sioux City.
 C. W. Wester, State University of Iowa.
 John Zimmerman, Dubuque German College and Seminary.

KANSAS.

W. H. Andrews, State Agricultural College.
 C. H. Ashton, University of Kansas.
 Talmon Bell, Cooper College.
 T. L. Bouse, Campbell College.
 M. R. Bowerman, State Agricultural College.
 V. B. Caris, State Manual Training Normal.
 Lucy T. Dougherty, Kansas City High School.
 Ottilia W. Dueker, Friends University.
 Elizabeth G. Flagg, Kansas City High School.
 W. H. Garrett, Baker University.
 P. W. Harnly, University of Kansas.
 W. A. Harshbarger, Washburn College.
 A. J. Hoare, Fairmount College.
 K. J. Holzinger, University of Kansas.
 Emma Hyde, Kansas City High School.
 Jessie M. Jacobs, University of Kansas.
 H. E. Jordan, University of Kansas.
 A. W. Larsen, University of Kansas.
 Solomon Lefschetz, University of Kansas.
 Theodore Lindquist, State Normal School.
 T. E. Mergendahl, College of Emporia.
 U. G. Mitchell, University of Kansas.
 C. A. Nelson, University of Kansas.
 Mary W. Newson, Washburn College.
 H. N. Olson, Bethany College.
 H. E. Porter, State Agricultural College.
 B. L. Remick, State Agricultural College.
 D. H. Richert, Bethel College.

J. A. G. Shirk, State Manual Training School.
 E. M. Stahl, Midland College.
 L. L. Steimley, University of Kansas.
 E. B. Stouffer, University of Kansas.
 W. T. Stratton, State Agricultural College.
 J. N. Van der Vries, University of Kansas.
 J. J. Wheeler, University of Kansas.
 A. E. White, State Agricultural College.
 Ella Woodyard, Kansas City High School.

KENTUCKY.

P. P. Boyd, University of Kentucky.
 J. M. Davis, University of Kentucky.
 J. E. Dotterer, University of Kentucky.
 Henry Lloyd, Transylvania College.
 H. R. Phalen, Berea College.
 E. L. Rees, University of Kentucky.
 A. L. Rhoton, Georgetown College.

LOUISIANA.

A. Bogard, Shreveport High School.
 J. T. Cater, Straight College.
 A. B. Dinwiddie, Tulane University.
 P. T. Hedges, Louisiana State Normal.
 J. W. Nicholson, University of Louisiana.
 Mary C. Spencer, Newcomb College.

MAINE.

A. S. Adams, Edward Little High School, Auburn.
 T. B. Ashcraft, Colby College.
 B. E. Carter, Colby College.
 J. A. Colson, National Bank, Searsport.
 M. T. Goodrich, High School, Bingham.
 J. H. Hart, University of Maine.
 A. H. Holmes, Brunswick.
 Alice M. Lord, Portland High School.
 W. E. Milne, Bowdoin College.
 W. A. Moody, Bowdoin College.
 G. E. Ramsdell, Bates College.
 L. J. Reed, University of Maine.
 Fannie H. Robinson, Bangor High School.
 H. E. Trefethen, Colby College.

MARYLAND.

Clara L. Bacon, Goucher College.
 Harry Bateman, Johns Hopkins University.
 Lillian O. Brown, Hood College.
 Paul Capron, U. S. Naval Academy.
 A. B. Coble, Johns Hopkins University.
 Abraham Cohen, Johns Hopkins University.
 H. A. Converse, Baltimore Polytechnic Institute.
 W. C. Eells, U. S. Naval Academy.
 J. B. Eppes, U. S. Naval Academy.
 J. N. Galloway, Baltimore Polytechnic Institute.
 Angelo Hall, U. S. Naval Academy.
 S. C. Harry, Friends School, Baltimore.
 A. W. Hobbs, Baltimore.
 L. S. Hulbert, Johns Hopkins University.
 W. W. Johnson, U. S. Naval Academy.
 Florence P. Lewis, Goucher College.
 Frank Morley, Johns Hopkins University.
 E. B. Morrow, Gilman Country School, Baltimore.
 J. R. Musselman, Johns Hopkins University.
 S. F. Norris, Baltimore City College.

C. H. Rawlins, Jr., Baltimore.
 H. M. Robert, Jr., Baltimore.
 R. E. Root, U. S. Naval Academy.
 W. F. Shenton, Johns Hopkins University.
 E. R. Smith, The Park School, Baltimore.
 C. P. Sousley, Mount St. Mary's College.

MASSACHUSETTS.

H. L. Agard, Williams College.
 F. H. Bailey, Massachusetts Institute of Technology.
 Ida Barney, Smith College.
 Ralph Beatley, Milton Academy.
 Susan R. Benedict, Smith College.
 G. D. Birkhoff, Harvard University.
 C. L. Bouton, Harvard University.
 H. C. Bradley, Massachusetts Institute of Technology.
 L. A. Brigham, Boston University.
 R. E. Bruce, Boston University.
 E. S. Bryant, Everett High School.
 J. A. Bullard, Worcester Polytechnic Institute.
 A. D. Butterfield, Worcester Polytechnic Institute.
 Eva Chandler, Wellesley College.
 J. E. Clark, Springfield.
 L. L. Conant, Worcester Polytechnic Institute.
 M. Imogene Cook, Walnut Hill School, Natick.
 J. L. Coolidge, Harvard University.
 Lennie P. Copeland, Wellesley College.
 H. N. Davis, Harvard University.
 C. R. Duncan, Massachusetts Agricultural College.
 T. C. Esty, Amherst College.
 W. C. Esty, Amherst College.
 G. W. Evans, Charlestown High School, Boston.
 F. C. Ferry, Williams College.
 H. D. Gaylord, Browne and Nichols School, Cambridge.
 G. M. Green, Harvard University.
 C. E. Haigler, Wentworth Institute, Boston.
 J. G. Hardy, Williams College.
 Olive C. Hazlett, Cambridge.
 C. A. Hobbs, Watertown.
 E. V. Huntington, Harvard University.
 Dunham Jackson, Harvard University.
 Ervin Kenison, Massachusetts Institute of Technology.
 A. E. Kennelly, Harvard University.
 Carl King, Wentworth Institute, Boston.
 Edward Kircher, Harvard University.
 B. B. Libby, Massachusetts Institute of Technology.
 Joseph Lipka, Massachusetts Institute of Technology.
 U. J. Lupien, Lowell Textile School.
 Emilie N. Martin, Mount Holyoke College.
 Helen A. Merrill, Wellesley College.
 C. L. E. Moore, Massachusetts Institute of Technology.
 M. M. S. Moriarty, Holyoke High School.
 R. K. Morley, Worcester Polytechnic Institute.
 Florence L. Munroe, Northampton High School.
 C. E. Norwood, Dartmouth College.
 G. D. Olds, Amherst College.

W. F. Osgood, Harvard University.
 Anna J. Pell, Mount Holyoke College.
 H. B. Phillips, Massachusetts Institute of Technology.
 Gertrude E. Preston, Dana Hall School, Wellesley.
 W. R. Ransom, Tufts College.
 C. N. Reynolds, Jr., Cambridge.
 George Rutledge, Massachusetts Institute of Technology.
 Clara E. Smith, Wellesley College.
 Sarah E. Smith, Mount Holyoke College.
 J. J. Sullivan, Jr., Roxbury.
 H. W. Tyler, Massachusetts Institute of Technology.
 Roxana H. Vivian, Wellesley College.
 G. L. Wagar, Mount Hermon Boys' School.
 A. C. Washburne, Berkshire Life Insurance Company, Pittsfield.
 George Wentworth, Brookline.
 A. H. Wheeler, High School of Commerce, Worcester.
 F. B. Williams, Clark University.
 E. B. Wilson, Massachusetts Institute of Technology.
 F. S. Woods, Massachusetts Institute of Technology.
 Euphemia R. Worthington, Wellesley College.
 W. C. Wright, Actuary, Medford.
 Mabel M. Young, Wellesley College.

MICHIGAN.

J. W. Baldwin, University of Michigan.
 W. W. Beman, University of Michigan.
 J. W. Bradshaw, University of Michigan.
 W. H. Butts, University of Michigan.
 L. C. Emmons, Michigan Agricultural College.
 A. G. Erickson, Michigan State Normal College.
 E. B. Escott, Peninsular Life Insurance Company, Detroit.
 J. P. Everett, Western State Normal School.
 Peter Field, University of Michigan.
 W. B. Ford, University of Michigan.
 C. H. Forsyth, University of Michigan.
 W. Van N. Garretson, University of Michigan.
 J. W. Glover, University of Michigan.
 E. D. Grant, Michigan College of Mines.
 C. L. Herron, Hillsdale College.
 T. H. Hildebrandt, University of Michigan.
 W. J. Hussey, University of Michigan.
 L. C. Karpinski, University of Michigan.
 W. W. Küstermann, University of Michigan.
 E. A. Lyman, State Normal College.
 J. L. Markley, University of Michigan.
 G. R. Mirick, University of Michigan.
 Alfred Nelson, University of Michigan.
 F. N. Notestein, Alma College.
 L. C. Plant, Michigan Agricultural College.
 R. H. Reece, Michigan Agricultural College.
 Wm. Rinck, Calvin College.
 T. R. Running, University of Michigan.
 E. R. Sleight, Albion College.
 G. G. Speeker, Michigan Agricultural College.
 C. C. Spooner, Northern Normal School.
 W. J. Thome, University of Detroit.

M. O. Tripp, Olivet College.
 Mary L. Welton, Union High School, Grand Rapids.
 Marion B. White, Michigan State Normal College.
 C. B. Williams, Kalamazoo College.
 Alexander Ziwet, University of Michigan.

MINNESOTA.

Albert Babbitt, University of Minnesota.
 G. N. Bauer, University of Minnesota.
 W. O. Beal, University of Minnesota.
 Edla G. Berger, College of St. Catherine.
 W. E. Brooke, University of Minnesota.
 W. H. Bussey, University of Minnesota.
 H. H. Dalaker, University of Minnesota.
 C. H. Gingrich, Carleton College.
 G. W. Hartwell, Hamline University.
 A. F. Kovarik, University of Minnesota.
 L. E. Lunn, School Superintendent, Heron Lake.
 B. L. Newkirk, University of Minnesota.
 C. A. V. Peterson, Minneapolis.
 W. D. Reeve, University of Minnesota.
 R. R. Shumway, University of Minnesota.
 H. L. Slobin, University of Minnesota.
 J. F. Taylor, Central High School, Duluth.
 A. L. Underhill, University of Minnesota.

MISSISSIPPI.

Alfred Hume, University of Mississippi.
 J. M. Sharp, Mississippi College.
 B. M. Walker, Agricultural and Mechanical College.

MISSOURI.

L. D. Ames, University of Missouri.
 Charles Ammerman, McKinley High School, St. Louis.
 A. C. Andrews, Manual Training High School, Kansas City.
 C. J. Borgmeyer, St. Louis University.
 M. S. Brennan, St. Louis.
 Dorothy G. Calman, St. Louis.
 A. D. Campbell, Washington University.
 E. F. Canaday, Columbia.
 Byron Cosby, State Normal School, Kirksville.
 Otto Dunkel, University of Missouri.
 C. A. Epperson, First District Normal School.
 Zoe Ferguson, St. Joseph Junior College.
 B. F. Finkel, Drury College.
 R. R. Fleet, William Jewell College.
 G. C. Forsman, Central High School, St. Louis.
 Emma M. Gibson, Drury College.
 E. R. Hedrick, University of Missouri.
 C. G. Hinrichs, Consulting Chemist, St. Louis.
 Louise H. Huff, McKinley High School, St. Louis.
 Jewell C. Hughes, Columbia.
 A. H. Huntington, Central High School, St. Louis.
 Byron Ingold, Christian University.
 Louis Ingold, University of Missouri.
 T. W. Jackson, Fulton High School.
 John James, Synodical College.

G. H. Jamison, First District Normal School.
 J. R. Jenison, Tarkio College.
 B. F. Johnson, State Normal School, Cape Girardeau.
 Stella Johnson, Edina High School.
 O. D. Kellogg, University of Missouri.
 J. M. Kent, Manual Training High School, Kansas City.
 Lyda Long, Cleveland High School, St. Louis.
 W. A. Luby, Northeast High School, Kansas City.
 A. R. Nauer, Mechanical Engineer, St. Louis.
 Randolph Patton, Columbia.
 J. C. Rayworth, Washington University.
 W. H. Roever, Washington University.
 W. G. Rowe, Smith Academy Manual Training School.
 J. H. Scarborough, State Normal School, Warrensburg.
 A. J. Schwartz, Grover Cleveland High School, St. Louis.
 J. I. Shannon, St. Louis University.
 I. C. Smith, Columbia.
 H. P. Stellwagen, Yeatman High School, St. Louis.
 F. C. Touton, St. Joseph Junior College.
 F. W. Urban, State Normal School, Warrensburg.
 C. A. Waldo, Washington University.
 J. A. Waldron, Chaminade College.
 Eula A. Weeks, Cleveland High School, St. Louis.
 R. A. Wells, Park College.
 W. D. A. Westfall, University of Missouri.
 Rose B. Wood, Hardin College.
 W. H. Zeigel, First District Normal School.

MONTANA.

H. F. Calderwood, Glasgow.
 E. F. A. Carey, University of Montana.
 N. J. Lennes, University of Montana.

NEBRASKA.

J. N. Bennett, Doane College.
 Henry Blumberg, University of Nebraska.
 W. C. Brenke, University of Nebraska.
 G. R. Chatburn, University of Nebraska.
 E. W. Davis, University of Nebraska.
 R. I. Elliott, State Normal School, Kearney.
 H. C. Feemster, York College.
 T. J. Fitzpatrick, Bethany.
 Ellen H. Frankish, Omaha High School.
 J. M. Howie, State Normal School.
 Mayme I. Logsdon, Hastings College.
 L. E. Pratt, Tecumseh.
 W. M. Reeves, Cotner University.
 Oscar Schmiedel, Bellevue College.
 L. C. Walker, Ceresco.

NEVADA.

Chas. Haseman, University of Nevada.
 J. A. Nyswander, University of Nevada.

NEW HAMPSHIRE.

R. D. Beetle, Dartmouth College.
 E. G. Bill, Dartmouth College.

C. R. Dines, Dartmouth College.
 G. I. Hopkins, Manchester, High School.
 L. C. Mathewson, Dartmouth College.
 F. C. Moore, New Hampshire College.
 F. M. Morgan, Dartmouth College.
 C. C. Steck, New Hampshire State College.
 H. L. Sweet, Phillips Exeter Academy.
 J. W. Young, Dartmouth College.

NEW JERSEY.

E. P. Adams, Princeton University.
 A. A. Bennett, Princeton University.
 G. A. Bingley, Princeton.
 Sister Blanche Marie, College of St. Elizabeth.
 J. W. Colliton, Trenton High School.
 L. S. Dederick, Princeton University.
 Fletcher Durell, Lawrenceville School.
 L. P. Eisenhart, Princeton University.
 H. B. Fine, Princeton University.
 C. O. Gunther, Stevens Institute of Technology.
 William Kent, Consulting Engineer, Montclair.
 I. E. Kline, Atlantic City High School.
 R. W. Lord, Plainfield High School.
 L. A. Martin, Jr., Stevens Institute of Technology.
 Richard Morris, Rutgers College.
 J. A. Nyberg, Princeton.
 F. E. Seymour, State Normal School.
 C. A. Stanwick, Electrical Engineer, Orange.
 H. D. Thompson, Princeton University.
 A. A. Titsworth, Rutgers College.
 Oswald Veblen, Princeton University.
 H. E. Webb, Central High School, Newark.
 F. N. Willson, Princeton University.

NEW MEXICO.

W. E. Edington, University of New Mexico.
 D. C. Pearson, New Mexico Military Institute.
 T. G. Rodgers, New Mexico Normal University.

NEW YORK.

Joseph Allen, College of the City of New York.
 Matilda Auerbach, Ethical Culture High School, New York.
 D. R. Belcher, Columbia University.
 Mabel R. Benway, Bay Ridge High School, Brooklyn.
 C. A. Bergstresser, Boys' High School, Brooklyn.
 W. J. Berry, Polytechnic Institute, Brooklyn.
 Herman Betz, Cornell University.
 William Betz, East High School, Rochester.
 Harry Birchenough, State College for Teachers.
 Joseph Bowden, Adelphi College.
 Jessie W. Boyce, New York.
 W. E. Breckenridge, Columbia University.
 J. A. Brewster, College of the City of New York.
 H. S. Brown, Hamilton College.
 W. G. Bullard, Syracuse University.
 R. W. Burgess, Cornell University.
 J. A. C. Callan, Union University.
 G. A. Campbell, Research Engineer, Am. Tel. and Telephone Company, New York.
 W. M. Carruth, Hamilton College.
 W. B. Carver, Cornell University.
 Mary E. Caster, New York.

E. B. Chamberlain, The Franklin School, New York.
 G. M. Conwell, State College for Teachers.
 E. C. Cook, College of the City of New York.
 Elizabeth B. Cowley, Vassar College.
 E. O. Cox, New York.
 Alfred Davis, Horace Mann High School, New York.
 G. G. Day, Buffalo.
 F. F. Decker, Syracuse University.
 H. R. Dougherty, New York Military Academy.
 C. H. Douglas, D. C. Heath and Company, New York.
 W. P. Durfee, Hobart College.
 C. P. Echoes, U. S. Military Academy.
 J. O. Eckersley, Consulting Engineer, New York.
 T. W. Edmondson, New York University.
 J. D. Eshleman, University of Rochester.
 F. E. Fash, New York.
 C. A. Fischer, Columbia University.
 T. S. Fiske, Columbia University.
 Mrs. Edward Fitch, Clinton.
 W. B. Fite, Columbia University.
 F. W. Frankland, Actuary, Equitable Life Assurance Society, New York.
 W. S. Franklin, New York.
 M. G. Gaba, Cornell University.
 A. S. Gale, University of Rochester.
 D. C. Gillespie, Cornell University.
 Matilda Goertz, High School Teacher, New York.
 Benjamin Grossbaum, New York.
 C. C. Grove, Columbia University.
 H. O. Hanson, East Elmhurst, Long Island.
 F. M. Hartmann, Cooper Union.
 H. E. Hawkes, Columbia University.
 G. M. Hayes, College of the City of New York.
 Robert Henderson, Actuary, Equitable Life Assurance Society, New York.
 A. A. Himwich, Physician, New York.
 Blanche Hirsch, Alcuin Preparatory School, New York.
 F. C. Hodgdon, Ginn and Company, New York.
 Anna M. Howe, Jordan.
 W. A. Hurwitz, Cornell University.
 S. A. Joffe, Actuary, Mutual Life Insurance Company, New York.
 E. A. Johnson, College of the City of New York.
 Edward Kasner, Columbia University.
 D. F. Kelly, High School Teacher, New York.
 E. H. Koch, Jr., High School of Commerce, New York.
 F. A. Kristal, Cascadilla School, Ithaca.
 Harry Langman, Metropolitan Life Insurance Company, New York.
 J. A. Lanigan, Niagara Falls.
 Marcia L. Latham, Hunter College.
 Louis Lindsey, Syracuse University.
 P. H. Linehan, College of the City of New York.
 L. L. Locke, Brooklyn Training School for Teachers.
 J. V. McKelvey, Cornell University.
 James Maclay, Columbia University.
 James McMahon, Cornell University.
 E. S. Mayer, Cascadilla School, Ithaca.
 Mansfield Merriman, New York.
 H. B. Mitchell, Columbia University.
 E. C. Molina, American Tel. and Telephone Company, New York.
 A. H. Norton, Elmira College.
 F. W. Owens, Cornell University.
 George Paaswell, Civil Engineer, New York.
 F. M. Pedersen, College of the City of New York.
 H. F. Pfahl, New York.
 Maximilian Philip, College of the City of New York.
 President, Pi Mu Epsilon Fraternity, Syracuse University.
 Arthur Ranum, Cornell University.
 H. W. Reddick, Cooper Union.
 Emma M. Requa, Hunter College.
 F. G. Reynolds, College of the City of New York.
 E. D. Roe, Jr., Syracuse University.
 E. L. Sanford, St. Stephen's College.
 Paul Saurel, College of the City of New York.
 C. N. Schmall, Public Schools, New York.
 Elmer Schuyler, Bay Ridge High School, Brooklyn.
 H. M. Sheffer, College of the City of New York.
 L. P. Sicheloff, Columbia University.
 L. L. Silverman, Cornell University.
 Lao G. Simons, Hunter College.
 A. W. Smith, Colgate University.
 D. E. Smith, Columbia University.
 R. R. Smith, with The Macmillan Company, New York.
 R. H. Somers, U. S. Military Academy.
 Jessie Spearing, New York.
 J. J. Tanzola, Cooper Union.
 J. M. Taylor, Colgate University.
 W. E. Taylor, Syracuse University.
 J. S. Thompson, Mutual Life Insurance Company, New York.
 A. B. Turner, College of the City of New York.
 C. V. Van Anda, with New York Times, New York.
 Anna L. Van Benschoten, Wells College.
 J. N. Vedder, Union College.
 Evelyn Walker, Hunter College.
 C. B. Walsh, Ethical Culture High School, New York.
 Louisa M. Webster, Hunter College.
 A. L. Wechsler, New York.
 Mary E. Wells, Vassar College.
 Bertha G. Westfall, New York.
 E. E. Whitford, College of the City of New York.
 G. F. Wilder, Erasmus Hall High School, Brooklyn.
 Ruby Willis, Wells College.

NORTH CAROLINA.

T. C. Amick, Elon College.
 Helen Barton, Salem College.
 H. H. Brinton, Guilford College.
 William Cain, University of North Carolina.
 J. L. Douglas, Davidson.
 J. W. Lasley, Jr., University of North Carolina.
 Gertrude O. Mendenhall, State Normal College.
 K. B. Patterson, Lenoir College.

Virginia Ragsdale, State Normal College.
W. W. Rankin, Jr., University of North Carolina.
M. R. Richardson, Durham.

NORTH DAKOTA.

R. R. Hitchcock, University of North Dakota.

OHIO.

R. B. Allen, Kenyon College.
F. Anderegg, Oberlin College.
W. E. Anderson, Wittenberg College.
G. N. Armstrong, Ohio Wesleyan University.
C. L. Arnold, Ohio State University.
C. B. Austin, Ohio Wesleyan University.
Grace M. Bareis, Ohio State University.
Mrs. W. E. Beckwith, College for Women,
Western Reserve University.
R. D. Bohannan, Ohio State University.
Louis Brand, Jr., University of Cincinnati.
J. B. Brandeberry, Toledo University.
Elizabeth F. Burnell, Lake Erie College.
J. M. Cain, Mechanical Engineer, Ashtabula.
W. D. Cairns, Oberlin College.
A. G. Caris, Defiance College.
F. E. Carr, Oberlin College.
G. E. Carscallen, Hiram College.
E. F. Coddington, Ohio State University.
L. M. Coffin, Oberlin College.
R. M. Deming, Case School of Applied Science.
O. L. Dusheimer, Baldwin-Wallace College.
J. B. Faught, Kent State Normal College.
T. M. Focke, Case School of Applied Science.
Harriet E. Glazier, Western College for Women.
M. E. Graber, Heidelberg University.
C. B. Haldeman, Ross.
Harris Hancock, University of Cincinnati.
E. J. Hirschler, Bluffton College.
Adam Hofmann, St. Mary College.
William Hoover, Ohio University.
Miss M. C. Horn, Muskingum College.
Christian Hornung, Heidelberg University.
C. A. Hutchinson, Wittenberg College.
A. L. Jenkins, University of Cincinnati.
R. A. Johnson, Western Reserve University.
W. W. Johnson, Y. M. C. A. Night Schools,
Cleveland.
J. H. Kindle, University of Cincinnati.
Emma L. Konantz, Ohio Wesleyan University.
H. W. Kuhn, Ohio State University.
Gertrude I. McCain, Oxford College for Women.
G. W. McCoard, Ohio State University.
Mrs. Eva S. Maglott, Ohio Northern University.
W. V. Metcalf, Oberlin.
F. E. Miller, Otterbein University.
C. N. Moore, University of Cincinnati.
Charlotte Morningstar, Ohio State University.
C. C. Morris, Ohio State University.
J. R. Overman, Bowling Green State Normal
College.
R. E. Owen, Forest.
Anna H. Palmé, College for Women, Western
Reserve University.
A. D. Pitcher, Western Reserve University.
J. B. Preston, Ohio State University.
S. E. Rasor, Ohio State University.

Hortense Rickard, Ohio State University.
Mary E. Sinclair, Oberlin College.
S. A. Singer, Capital University.
S. E. Slocum, University of Cincinnati.
E. S. Smith, University of Cincinnati.
M. J. Spinks, Bridge Engineer, Wilmington.
J. M. Stetson, Western Reserve University.
K. D. Swartzel, Ohio State University.
C. F. Thomas, Case School of Applied Science.
R. P. Thomas, College of Wooster.
S. E. Urner, Miami University.
A. W. Wallace, Franklin College.
C. J. West, Ohio State University.
Mabel G. Whiting, Antioch College.
F. B. Wiley, Denison University.
D. T. Wilson, Case School of Applied Science.
D. W. Woodard, Wilberforce University.
B. F. Yanney, College of Wooster.
E. I. Yowell, University of Cincinnati.

OKLAHOMA.

E. P. R. Duval, University of Oklahoma.
H. C. Gossard, University of Oklahoma.
Carl Gundersen, Agricultural and Mechanical
College.
J. R. Livingston, School of Mines.
P. S. Morgan, Henry Kendall College.
S. W. Reaves, University of Oklahoma.
J. L. Riley, Northeastern State Normal.
W. T. Short, Oklahoma Baptist University.

OREGON.

E. E. De Cou, University of Oregon.
F. L. Griffin, Reed College.
H. H. Ludlow, U. S. Army, Fort Stevens.
A. A. Merriss, Portland.
Emily G. Palmer, Salem High School.
Gilbert Thayer, Engineer, Portland.
E. D. West, Pacific University.

PENNSYLVANIA.

O. P. Akers, Allegheny College.
A. T. G. Apple, Franklin and Marshall College.
C. S. Atchison, Washington and Jefferson
College.
A. C. Baird, Fifth Avenue High School, Pitts-
burgh.
J. A. Bauman, Muhlenberg College.
O. F. H. Bert, Washington and Jefferson College.
F. L. Bishop, University of Pittsburgh.
J. C. Bland, Bridge Engineer, Pittsburgh.
J. F. Burley, Philadelphia.
G. G. Chambers, University of Pennsylvania.
R. L. Charles, Lehigh University.
J. J. Clark, International Correspondence School.
J. A. Clarke, West Philadelphia High School for
Boys.
J. W. Clawson, Ursinus College.
E. S. Crawley, University of Pennsylvania.
J. E. Davis, Pennsylvania State College.
C. G. Dill, Drexel Institute.
G. G. Durham, Philadelphia.
H. B. Evans, University of Pennsylvania.
G. E. Fisher, University of Pennsylvania.
F. A. Foraker, University of Pittsburgh.

O. E. Glenn, University of Pennsylvania.
 W. A. Granville, Pennsylvania College.
 T. E. Gravatt, Pennsylvania State College.
 J. H. Griffith, Bureau of Standards, Pittsburgh.
 H. V. Gummere, Drexel Institute.
 J. W. Haines, Central High School, Philadelphia.
 W. S. Hall, Lafayette College.
 N. B. Heller, Temple University.
 F. J. Holder, University of Pittsburgh.
 H. A. Kiess, Albright College.
 P. A. Lambert, Lehigh University.
 W. W. Landis, Dickinson College.
 M. A. Linton, Provident Life and Trust Company, Philadelphia.
 Barry MacNutt, Lehigh University.
 Emory McClintock, Mutual Life Insurance Company, Philadelphia.
 R. W. Marriott, Swarthmore College.
 J. A. Miller, Swarthmore College.
 R. L. Moore, University of Pennsylvania.
 M. T. Nolan, Dunmore High School.
 Louis O'Shaughnessy, University of Pennsylvania.
 E. A. Partridge, West Philadelphia High School for Boys.
 J. J. Quinn, High School, Pittsburgh.
 Arthur Ramsey, Grove City College.
 A. G. Rau, Moravian College.
 H. J. F. Reusswig, Nazareth Hall Military Academy.
 J. B. Reynolds, Lehigh University.
 N. C. Riggs, Carnegie Institute of Technology.
 J. E. Rowe, Pennsylvania State College.
 F. H. Safford, University of Pennsylvania.
 I. J. Schwatt, University of Pennsylvania.
 Charlotte A. Scott, Bryn Mawr College.
 Wayne Sensenig, West Conshohocken.
 C. G. Simpson, Pennsylvania State College.
 E. R. Smith, Pennsylvania State College.
 W. M. Smith, Lafayette College.
 A. D. Snyder, Lafayette College.
 G. H. Taber, Pittsburgh.
 Edith V. Thompson, Wilkes-Barré Institute.
 C. L. Thornburg, Lehigh University.
 J. F. Travis, Duquesne University.
 J. H. Weaver, West Chester High School.
 W. P. Webber, University of Pittsburgh.
 Amelia C. Wight, Philadelphia High School for Girls.
 C. E. Wilder, Pennsylvania State College.
 A. H. Wilson, Haverford College.
 W. L. Wright, Lincoln University.

RHODE ISLAND.

R. C. Archibald, Brown University.
 T. H. Brown, Brown University.
 C. H. Currier, Brown University.
 N. F. Davis, Brown University.
 J. H. French, Providence.
 H. P. Manning, Brown University.
 A. W. Peaslee, St. George's School, Newport.
 R. G. D. Richardson, Brown University.
 L. E. Swain, Providence Technical High School.
 M. H. Tyler, Rhode Island State College.

SOUTH CAROLINA.

J. B. Coleman, University of South Carolina.
 M. D. Earle, Furman University.
 R. G. Thomas, Military College of South Carolina.

SOUTH DAKOTA.

G. L. Brown, South Dakota State College.
 P. A. Field, Plainview Academy, Redfield.
 T. E. McKinney, University of South Dakota.
 H. L. McLaury, State School of Mines.
 C. N. Mills, South Dakota State College.
 G. H. Scott, Yankton College.
 H. E. Wolfe, University of South Dakota.

TENNESSEE.

S. M. Barton, University of the South.
 H. E. Buchanan, University of Tennessee.
 R. G. Cox, The Ward-Belmont School, Nashville.
 F. F. Hooper, University of Chattanooga.
 S. I. Jones, Nashville Bible School.
 G. A. Knapp, Maryville College.
 W. L. Lord, University School, Nashville.
 J. J. Luck, Vanderbilt University.
 Theresa J. Sherrer, Martin College.

TEXAS.

C. I. Alexander, Texas Christian University.
 L. G. Allen, West Texas State Normal College.
 D. F. Barrow, University of Texas.
 H. Y. Benedict, University of Texas.
 J. D. Bond, Agricultural and Mechanical College.
 A. E. Chandler, Simmons College.
 Mary E. Decherd, University of Texas.
 E. de la Garza, Brownsville.
 E. L. Dodd, University of Texas.
 H. J. Ettlinger, University of Texas.
 E. L. Hagelstein, San Angelo.
 J. W. Harrell, Baylor University.
 E. H. Jones, Southern Methodist University.
 E. O. Lovett, Rice Institute.
 J. O. Mahoney, Dallas.
 I. I. Nelson, High School, Austin.
 I. C. Nichols, Agricultural and Mechanical College.
 Mrs. Susan K. Noel, Trinity University.
 M. B. Porter, University of Texas.
 P. C. Porter, Rusk Academy.
 O. A. Roach, San Antonio.
 P. H. Underwood, Ball High School, Galveston.
 C. N. Wunder, Southwestern University.

UTAH.

J. L. Gibson, University of Utah.
 E. W. Pehrson, University of Utah.
 A. H. Saxer, Agricultural College.
 G. B. Sweazey, Westminster College.

VERMONT.

J. E. Donahue, University of Vermont.
 F. D. Mabrey, Bennington.
 L. R. Perkins, Middlebury College.
 Elijah Swift, University of Vermont.
 Evan Thomas, University of Vermont.

VIRGINIA.

D. R. Carpenter, Roanoke College.
 J. M. Colaw, Monterey.
 C. N. Dickinson, Hollins College.
 F. W. Duke, Virginia Mechanics Institute.
 W. H. Echols, University of Virginia.
 R. E. Gaines, Richmond College.
 Gillie A. Larew, Randolph-Macon Woman's College.
 J. S. Miller, Emory and Henry College.
 Miss E. M. Morenus, Sweet Briar College.
 E. J. Oglesby, University of Virginia.
 J. B. Smith, Hampden-Sidney College.
 L. W. Smith, Washington and Lee University.
 Ormond Stone, University of Virginia.
 John Tyler, William and Mary College.
 C. W. Watts, Virginia Military Institute.
 J. E. Williams, Virginia Polytechnic Institute.

WASHINGTON.

E. T. Bell, University of Washington.
 S. L. Boothroyd, University of Washington.
 W. A. Brattan, Whitman College.
 A. F. Carpenter, University of Washington.
 G. I. Gavett, University of Washington.
 D. J. Guy, Whitworth College.
 F. W. Hanawalt, College of Puget Sound.
 C. L. Hix, State College of Washington.
 R. E. Moritz, University of Washington.
 L. I. Neikirk, University of Washington.
 G. E. Raynor, University of Washington.
 L. E. Wear, University of Washington.

WEST VIRGINIA.

Fanny F. Baker, St. Hilda's Hall, Charles Town.
 J. V. Balch, Bethany College.
 John Eiesland, West Virginia University.
 C. E. Flanagan, Life Insurance, Wheeling.
 C. E. Githens, Superintendent of Schools, Wheeling.
 J. E. Hodgson, West Virginia University.

Following is the list of Institutional Members received up to April 24. There being no initiation fee for this class of members, applications may be sent at any time, accompanied by the annual dues of five dollars.

INSTITUTIONAL MEMBERS.

University of St. Francis Xavier, Antigonish, N. S., Canada.
 Colorado College, Colorado Springs, Colo.
 Colorado School of Mines, Golden, Colo.
 Wesleyan University, Middletown, Conn.
 University of Georgia, Athens, Ga.
 Carthage College, Carthage, Ill.
 Armour Institute of Technology, Chicago, Ill.
 University of Chicago, Chicago, Ill.
 Northwestern University, Evanston, Ill.
 Rockford College, Rockford, Ill.
 University of Illinois, Urbana, Ill.
 Purdue University, LaFayette, Ind.
 Manchester College, North Manchester, Ind.

Bird M. Turner, Moundsville High School.
 C. E. White, West Virginia Wesleyan College.

WISCONSIN.

L. K. Adkins, State Normal School, La Crosse.
 Katherine S. Arnold, Milwaukee-Downer College.
 H. T. Burgess, University of Wisconsin.
 Sister Mariola Dobbins, Saint Clara College.
 L. W. Dowling, University of Wisconsin.
 Arnold Dresden, University of Wisconsin.
 Henry Ericson, West Division High School, Milwaukee.
 A. F. Frumveller, Marquette University.
 W. A. Hamilton, Beloit College.
 E. S. Haynes, Beloit College.
 T. M. Simpson, University of Wisconsin.
 C. S. Slichter, University of Wisconsin.
 C. W. Smith, State Normal School, Superior.
 I. N. Warner, State Normal School, Platteville.
 A. E. Whitford, Milton College.
 W. H. Williams, State Normal School, Platteville.
 Fredrick Wood, University of Wisconsin.
 W. R. Woodmansee, Ripon College.

WYOMING.

J. C. Fitterer, University of Wyoming.
 C. B. Ridgaway, University of Wyoming.
 C. E. Stromquist, University of Wyoming.

CHINA.

A. Heinz, Tsing Hua College, Peking.
 D. H. Leavens, The College of Yale in China.
 W. E. Patten, Government Institute of Technology, Shanghai.

ENGLAND.

C. S. Jackson, Royal Military Academy, Woolwich.
 H. W. Richmond, King's College, Cambridge.

INDIA.

N. P. Pandya, Sojitra High School.

Iowa State College, Ames, Ia.
 State University of Iowa, Iowa City, Ia.
 University of Kansas, Lawrence, Kans.
 Bethel College, Newton, Kans.
 University of Louisville, Louisville, Ky.
 University of Maine, Orono, Me.
 Amherst College, Amherst, Mass.
 University of Michigan, Ann Arbor, Mich.
 Kalamazoo College, Kalamazoo, Mich.
 University of Minnesota, Minneapolis, Minn.
 College of St. Catherine, St. Paul, Minn.
 Blue Mountain College, Blue Mountain, Miss.
 University of Missouri, Columbia, Mo.
 Central College, Fayette, Mo.

Washington University, St. Louis, Mo.	Kenyon College, Gambier, Ohio.
University of Montana, Missoula, Mont.	Oberlin College, Oberlin, Ohio.
Creighton University, Omaha, Nebr.	Lake Erie College, Painesville, Ohio.
Rutgers College, New Brunswick, N. J.	Albright College, Myerstown, Pa.
New York State College for Teachers, Albany, N. Y.	Drexel Institute, Philadelphia, Pa.
University of Buffalo, Buffalo, N. Y.	Carnegie Institute of Technology, Pittsburgh, Pa.
The College of the City of New York, New York, N. Y.	Swarthmore College, Swarthmore, Pa.
The Cooper Union, New York, N. Y.	University of Texas, Austin, Tex.
Case School of Applied Science, Cleveland, Ohio.	Southern Methodist University, Dallas, Texas.
Western Reserve University, Cleveland, Ohio.	Baylor University, Waco, Texas.
Ohio State University, Columbus, Ohio.	Middlebury College, Middlebury, Vt.
Ohio Wesleyan University, Delaware, Ohio.	University of Virginia, University, Va.
	University of Washington, Seattle, Wash.

SUMMARY OF CHARTER MEMBERSHIP.

Individual members whose acceptances have been received	1,028
Individuals elected as signers of the "Call" or participants in the Columbus meeting, from whom no word has been received	18
Institutional members	52
Total	1,098

In addition to the above figures, there are on the *MONTHLY* subscription list the names of 141 persons who have not as yet become members of the *ASSOCIATION*, and of 176 libraries not included among the institutional members.

NOTES AND NEWS.

EDITED BY D. A. ROTHROCK, Indiana University.

Dr. DUNHAM JACKSON has been promoted to an assistant professorship of mathematics at Harvard University.

Mr. C. GARLOUGH has been appointed instructor in mathematics at Wheaton College, Illinois.

The death is announced of Professor J. W. RICHARD DEDEKIND, of the technical school of Brunswick, Germany.

In *Science* of March 3, Professor E. V. HUNTINGTON has a short and interesting discussion on "The fundamental equation of mechanics."

Miss S. F. RICHARDSON, assistant professor of mathematics in Vassar College, died on Feb. 2, 1916. Miss Richardson was a graduate of Vassar, and for thirty years has been a member of the teaching staff.

Professor ARNOLD EMCH, of the University of Illinois, has an interesting non-technical article in *The Scientific Monthly*, March, 1916, on "The representation of large numbers and infinite processes."